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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/23/2003

Peter Bixby

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27927 7590 01/29/2007  
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EXAMINER

PYO, MONICA M

ART UNIT

PAPER NUMBER

2161

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/668,546	<b>Applicant(s)</b> BIXBY ET AL.	
	<b>Examiner</b> Monica M. Pyo	<b>Art Unit</b> 2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) 1-28, 35-39 and 47-51 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 29-34, 40-46, 52 and 53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/04, 6/04, 8/06</u>  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. This communication is responsive to the Election/Restriction filed on 10/25/2006.  
Applicant elected species I, claims 29-34, 40-46 and 52-53 with traverse in page 2 of Remark is acknowledged. Species II-IV, claims 1-28, 35-39 and 47-51 are withdrawn from further consideration by the Examiner, 37 CFR 1.142(b) as being drawn to a non-elected. Therefore, Claims 29-34, 40-46 and 52-53 are present for examination.
2. Claims 29-34, 40-46 and 52-53 are rejected.

#### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 2/23/2004, 6/8/2004 and 8/7/2006 was filed and considered by the examiner.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 29, 30, 40, 42 and 52 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 29, 30, 40, 42 and 52, these claims recite the limitation that is vague and unclear. As an example, claim 29 recites following limitation: "A file server comprising storage containing a file system, and a processor coupled to the storage for accessing the file system, wherein the file system includes a production file, read-only snapshot copies of the production file, and at least one read-write snapshot copy of the production file, wherein the production file and the snapshot copies of the production file are organized as a version set

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including an inode for the production file and an inode for each snapshot copy of the production file, and a set of file blocks including data blocks and indirect blocks that are shared among the production file and the snapshot copies of the production file, wherein the file server further includes.” It is difficult to determine distinct boundaries between precise claim limitations in the claim. There is not a distinction between the preamble of the claim and the body of the claim. As presently written the claim can be described as a run-on claim with no clear separation of claim elements and/or limitations.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 29 is rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent No. 6,434,681 issued to Armangau (hereinafter Armangau) in view of U.S. Patent No. 6,892,211 issued to Hitz et al. (hereinafter Hitz).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention “by another”; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference

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under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Regarding claim 29, as far as the claim is understood, Armangau discloses a file server comprising storage containing a file system, and a processor coupled to the storage for accessing the file system, wherein the file system includes a production file, read-only snapshot copies of the production file, and at least one read-write snapshot copy of the production file, wherein the production file and the snapshot copies of the production file are organized as a version set including an inode for the production file and an inode for each snapshot copy of the production file, and a set of file blocks including data blocks and indirect blocks that are shared among the production file and the snapshot copies of the production file, wherein the file server further includes:

**A). means for creating new read-only snapshot copies of the production file,** as a new read-only snapshot copy creation (col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47) ;

**B). means for creating new read-write snapshot copies of the production file,** as a new read-write snapshot copy creation (Armangau: col. 3, lns. 5-22 & 50; col. 4, lns. 15-45);

**C). means for deleting a specified snapshot copy of the production file from the version set,** as data mover transmits a next track of data (Armangau: col. 20, lns. 55-67);

**D). means for restoring the production file with a specified snapshot copy of the production file,** as a snapshot restoration (Armangau: col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47);

**E). means for refreshing a specified snapshot copy of the production file,** as a snapshot refreshing (Armangau: col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47); **and**

Armangau does not explicitly disclose:

**F). means for naming the files in the version set,**

However, Hitz discloses:

**F). means for naming the files in the version set,** as the names of the snapshots in directory (Hitz: col. 15, lns. 30-41; col. 18, lns. 34-40).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the system of keeping a consistent file of Hitz in the system to maintain a snapshot copy in a production data of Armangau. Skilled artisan would have been motivated to combine the Hitz's teaching of keeping a consistent file in the Armangau's teaching of snapshot copy maintenance system to utilize the naming of the files in the version (Hitz: col. 3, lns. 13-30).

Regarding claims 30 and 42, as far as the claim is understood, Armangau discloses the file server comprising storage containing a file system, and a processor coupled to the storage for accessing the file system, wherein the file system includes a production file, and read-only

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snapshot copies of the production file, wherein the production file and the read-only snapshot copies of the production file are organized as a version set including an inode for the production file, an inode for each read-only snapshot copy of the production file, and a set of file blocks including data blocks and indirect blocks that are shared among the production file and the read-only snapshot copies of the production file,

**A). wherein the file server is programmed to maintain for each block in each snapshot copy of the production file an indication of whether or not said each snapshot copy of the production file is of the production file including an identical version of said each block, as a snapshot copy maintenance system (Armangau: col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47), and**

**B). wherein the file server is programmed to delete a read-only snapshot copy of the production file, and when deleting the read-only snapshot copy of the production file, to keep each block for which the read-only snapshot copy of the production file including an identical version of said each block, as a data mover transmits a next track of data (Armangau: col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47; col. 20, lns. 55-67).**

Armangau does not explicitly disclose:

**A). an oldest snapshot copy,**

**B). is not indicated as being an oldest snapshot copy.**

However, Hitz discloses:

**A). an oldest snapshot copy, as an earlier time comparison (Hitz: col. 21, lns. 49-50; col. 23, lns. 28-55);**

**B). is not indicated as being an oldest snapshot copy, as a later time comparison**  
(Hitz: col. 21, lns. 49-50; col. 23, lns. 28-55).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the system of keeping a consistent file of Hitz in the system to maintain a snapshot copy in a production data of Armangau. Skilled artisan would have been motivated to combine the Hitz's teaching of keeping a consistent file in the Armangau's teaching of snapshot copy maintenance system to utilize the time comparison of the copies (Hitz: col. 3, lns. 13-30).

Regarding claims 31 and 43, Armangau and Hitz disclose the file server wherein each inode of each read-only snapshot copy of the production file is linked to a hierarchy of blocks included in said each read-only snapshot copy of the production file, and wherein the file server is further programmed, upon deleting the read-only snapshot copy of the production file, to keep all descendants of said each block for which the read-only snapshot copy is not indicated as being an oldest snapshot copy of the production file including an identical version of said each block (Armangau: col. 7, lns. 35-47; col. 20, lns. 55-67) and (Hitz: col. 15, lns. 30-41; col. 18, lns. 34-40; col. 21, lns. 49-50; col. 23, lns. 28-55).

Regarding claims 32 and 44, Armangau and Hitz disclose the file server which is further programmed, upon deleting the read-only snapshot copy of the production file, to keep each block for which the read-only snapshot is indicated as being an oldest snapshot copy of the production file including an identical version of said each block and a next-most recent snapshot copy of the production file is indicated as not being an oldest snapshot copy of the production



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file including an identical version of said each block (Armangau: col. 20, lns. 55-67) and (Hitz: col. 18, lns. 1-16; col. 21, lns. 49-50; col. 23, lns. 28-55).

Regarding claims 33 and 45, Armangau and Hitz disclose the file server which is further programmed, upon deleting the read-only snapshot copy of the production file, to indicate that the next-most recent snapshot copy of the production file has become an oldest snapshot copy of the production file including an identical version of said each block for which the read-only snapshot is indicated as being an oldest snapshot copy of the production file including an identical version of said each block and a next-most recent snapshot copy of the production file is indicated as not being an oldest snapshot copy of the production file including an identical version of said each block (Armangau: col. 20, lns. 55-67) and (Hitz: col. 18, lns. 1-16; col. 21, lns. 49-50; col. 23, lns. 28-55).

Regarding claims 34 and 46, Armangau and Hitz disclose the file server which is further programmed, upon deleting the read-only snapshot copy of the production file, to deallocate each block for which the read-only snapshot copy is indicated as an oldest snapshot copy of the production file including an identical version of said each block and a next most recent snapshot copy of the production file is also indicated as an oldest snapshot copy of the production file including an identical version of a block corresponding to said each block, wherein said each block and the block corresponding to said each block are mapped to the same logical file addresses (Armangau: col. 16, lns. 34-43; col. 20, lns. 55-67) and (Hitz: col. 18, lns. 1-16; col. 21, lns. 49-50; col. 23, lns. 28-55).

Regarding claims 40 and 52, as far as the claim is understood, Armangau discloses a file server comprising storage containing a file system, and a processor coupled to the storage for accessing the file system, wherein the file system includes a production file, and snapshot copies of the production file, wherein the production file and the snapshot copies of the production file are organized as a version set including an inode for the production file, an inode for each snapshot copy of the production file, and a set of file blocks including data blocks and indirect blocks that are shared among the production file and the snapshot copies of the production file,

**A). wherein the file server is programmed for refreshing a specified snapshot copy of the production file by creating in the version set, copying contents of the specified snapshot copy into so that the new references blocks of the specified snapshot copy, using the specified snapshot copy to create a new snapshot copy of the production file by copying contents of the production file of the specified snapshot copy, and performing a file deletion upon the new node, as a snapshot refreshing (Armangau: col. 7, lns. 35-47; col. 8, lns. 35-51; col. 9, lns. 50-col. 10, lns. 21; col. 13, lns. 25-47).**

Armangau does not explicitly disclose:

**A). a new inode.**

However, Hitz disclose:

**A). a new inode, as an inode (Hitz: col. 18, lns. 1-16).**

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the system of keeping a consistent file of Hitz in the system to maintain a snapshot copy in a production data of Armangau. Skilled artisan would have been motivated to

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combine the Hitz's teaching of keeping a consistent file in the Armangau's teaching of snapshot copy maintenance system to utilize the inode for each snapshot (Hitz: col. 3, lns. 13-30).

Regarding claims 41 and 53, Armangau and Hitz disclose the file server wherein the file deletion upon the new inode is performed asynchronously after using the inode of the specified snapshot copy to create a new snapshot copy of the production file by copying contents of the inode of the production file into the inode of the specified snapshot copy (Armangau: col. 20, lns. 55-67) and (Hitz: col. 18, lns. 1-16).

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo  
Examiner  
Art Unit 2161

mp  
1/19/2007

*Etienne P. Schaefer*  
*Primary Examiner*